1. INTRODUCTION TO PROJECT

Sunbeam Building is situated on the plot C.S. No. 20 of Girgaum Division situated at D Ward, RR Roy Marg , Charni Road, Mumbai, Maharashtra. The building presently is occupied by a total of 30 nos. of tenants. The structure being very old (prior to 1940) is unsafe for the people residing in it. Hence it is now being developed by M/s Axis Realty Pvt. Ltd into a residential cum commercial building.

The existing structure comprises of Ground Floor + 4 upper Floors and has one vacant Non Cessed ground storey structure. The user of the structure is partly commercial and partly residential as per the Inspection extract of BMC as well as Cessed Category Certificate. The land use of the existing plot is local commercial zone (C-1) as per the Development Plan Remarks.

The same is now being developed into a residential cum commercial building of 2 Basements + Ground + 1-20 upper Floors. The surrounding of the existing plot is also of mixed use i.e. residential and commercial. The site is surrounded by many more authorized structures. The site does not contain the environmentally sensitive areas as specified in the coastal Regulation Zone Notification 2011.

The total cost of the project is Rs. 20,00,00,000-(Twenty Crores) as per the valuation report carried by certified registered valuer.

2. PURPOSE OF THE REPORT

Proposed redevelopment of plot bearing C. S. No. 20 of Girgaum Division situated at D Ward, RR Roy Marg, Charni Road,Mumbai and thereby obtain CRZ-Environmental Clearance as per clause 33(7) of DCR – 1991 in force as on 6th January 2011. The Plot is occupied by a cessed A category building along with one non cessed building, which is proposed to be redeveloped. As per MoEF Notification dated 6/1/2011, redevelopment of dilapidated, cessed and unsafe buildings in CRZ areas are permitted with special advantages, in which the project is planned as per DCR's in force as on 6/1/2011 and staircase/ lobby/ lift area is claimed free of FSI, as per clause 35(2)(c) of DCR 1991. The proposal is submitted for prior CRZ clearance, as per the requirement of amended CRZ notification-2011 and the check list finalised by MCZMA vide Office Memorandum dated 02/07/2011.

Current development thus will help the existing tenant to get permanent, safe structure. At present they are residing in unsafe building. Photos of the same are attached in Annexure XIII.

As the site under reference is affected by CRZ-II zone, it attracts the CRZ legislation as per 6th January 2011 notification for Coastal Regulation Zone (CRZ). It abuts HTL. Hence the work is permitted subject to the approval of CRZ clearance. Thus the property attracts the CRZ legislation, which is reflected in CZMP plan.

3. DESCRIPTION OF THE PROJECT

3.1 NATURE OF THE PROJECT

This is a proposal for development of residential building situated at C.S. No. 20 of Girgaum Division situated at D Ward, RR Roy Marg, Charni Road,Mumbai in CRZ-II belt, as the same is situated within 500 mtr. from Arabian Sea. (Approx distance 174 m)

The proposal is for redevelopment of residential building, which is situated on the **landward side of existing Netaji Subhash Road and Maharshi Karve Road, both roads in existance prior to 19/2/1991, as may be seen from CZMP of Mumbai.**

The Plot is situated in Residential zone and not under any reservation as per 1967 DP as well as Revised 1993 DP. The FSI proposed on the plot under reference is 3.90, as per DCRs in force as on 6th Jan 2011, which is worked out on the governing criteria of rehab plus 50% incentive.

3.2 SIZE OF THE PROJECT

Area of the plot is 928.93 sq. mtr. for which 3618.38 sq. mtr. area is proposed for FSI purpose. Cost of the Project is Rs. 20,00,00,000/-(Rs. Twenty Crores only).

3.3 LOCATION

The C.S.No. 20 of Girgaum Division situated at D Ward, RR Roy Marg, Charni Road,Mumbai is in the heart of the city. The nearest railway station is Charni Road Railway Station, 0.2 Km on the western line. The building is located around 174 meters away from the High Tide Line.

Google Earth Image of the site

SITE UNDER REFERENCE

CZMP Plan showing location of reference Plot

3.4 SITE DESCRIPTION

The site under reference is affected by CRZ-II zone and the property fall landward side of the existing **Netaji Subhash Road and Maharshi Karve Road,** which is reflected in CZMP plan. Thus property attracts the CRZ legislation as per CRZ 2011.

The development site does not fall or contain the environmentally sensitive areas as specified in the coastal Regulation zone notification. Total plot Area in CRZ is 928.93 sq.mt out of that 348.04 mtrs is road set back area being handed over to BMC. Balance plot area is 580.89 sq.mt and the same will be used for construction activity.

Town / Tehsil : **Mumbai**

District **: Greater Mumbai**

State **: Maharashtra**

Latitude **: $18^0$57'12.70" N**

Longitude **: $72^0$49'02.63" E**

3.5 PROPOSED DEVELOPMENT

3.5.1 AREA

Sr. No.	Description	Details
1	Total Plot Area	968.93 sq.m
2	Deductions for setback area	348.04 sq.m
3	Balance area of plot(1-2)	580.89 sq.m
5	Permissible Built up area	3619.87 sq.m
6	Total Built up Area Proposed.	3618.38 sq.m
7	FSI Proposed	3.90
8	Total Construction Area	7700.00 sq. m (Approx.)
9	Parking required by MCGM Rule	55
10	Parking provided	60

PROJECT DEVELOPMENT DETAILS

Proposed development		
1	Structure of Building	2 Basements + Ground Floor + 20 upper floors including upper parking floors, refuge areas and commercial floors.
2	Tenements existing	30 including Commercial and Residential
3	Tenements proposed	44 including Commercial and Residential
4	Height of Building from Ground level	66.90 mtrs
5	Emergency Power supply (D.G. Nos. x KVa	1 no. 35 KVa
6	Area required for D.G sets	5 sq. mt
7	Salient features of the project	
	• Earthquake Resistance Building structure • Rain water Harvesting System in the complex • Energy Conservation; Provision of Solar water heating system. • Eco-Friendly Measures • Optimum use of Timber	

3.5.2 UTILITIES

The Utilities required during the construction phase area water, power, fuel and Labour.

i) **WATER :** (Expected Consumption – total 35 cum/day)

For Construction activities: 30 cum/day & For Domestic use: 5 cum/day

Water Balance (Construction Phase)				
Sr. No.	**Consumption**	**Input m^3/Day**	**Loss m^3/Day**	**Effluent m^3/Day**
1.	Construction Activities	30	30 (Tanker consumption)	Nil
2.	Domestic (50 Site Workers)	5	1	4
Total		**35**	**31**	**4**

Water Balance (Operation Phase)					
Sr. No.	**Component/ Head**	**Occupants**	**Water Requirement**		**Remarks**
			Domestic	**Flushing**	
1	Total residential population	143	12.87	6.44	@ 90/45 lpcd
2	Total non residential population	100	2.00	2.50	@ 20/25 lpcd
3	Total Commercial population	275	5.50	6.88	@ 20/25 lpcd
4	Car washing	-	0.30 CMD		60 cars (@5L per car)
5	Total Quantity of Water Required	518	36.18 CMD		For a total population of 518
6	Sewage + Grey Water generation	518	32.11 CMD		31.62 CMD to Treatment plant (capacity 40 CMD) after 1.5% evaporation losses
7	Sludge generated	-	0.06 CMD		-
8	STP treated recycled water	-	15.81 CMD		-

1] Source: - Water will be available from Mumbai (MCGM) for domestic use and from Tanker for construction purpose

2] Storage: - Water for construction will be stored in open tank.
Drinking water will be stored in HDPE tank.

ii) **POWER**

DURING CONSTRUCTION

(Expected Consumption- about 0.30 MW)

1] An Electricity supply of 0.30 MW will be available from BEST. It is mainly required for some construction equipments, general lighting etc.

2] All Fire & Safety measures will be taken as appropriate and will be supervised by the Authority.

DURING OPERATION

Total Energy consumption: 0.49 MW
The electricity supply will be available from BEST.

iii) FUEL

DURING CONSTRUCTION PHASE
Diesel (5 L/day during excavation & 10 L/day post excavation).
All the equipment are electrically driven except JCB, poclain, and concrete mixers.

DURING OPERATION PHASE

Diesel will be required to run the D. G. Set in case of power failure. Hence the quantity of diesel consumed will vary depending upon the usage of D. G set.

1. Storage: Diesel and oil will be stored in drums / tins with proper identification mark/labels in identified areas only.
2. Fire and safety measures will be taken as per the guidelines from concerned authority.
3. All Safety and fire precautions will be followed.

iv) MANPOWER

DURING CONSTRUCTION PHASE

(Expected Manpower – about 50)

Approximately 50 persons will be working during the peak time of construction phase. These persons will be on the project site during 0900 hrs. Except Security Personnel, who will be on the field round the clock for twenty – four hours.

DURING OPERATION PHASE

POPULATION

There will be about 518 persons residing in the building, out of these, 100 will be non residential staff including drivers, security.

4. CONSTRUCTION PHASE

The type of Construction Materials, Equipments used during the construction phase and persons involved in various activities on the field affect the status of environment to a great extent. The impact of construction Activities on various components of environment on the on the project site and surrounding area is predicated in this section.

4.1 LIST OF MATERIALS

The Construction material required for the proposed redevelopment is given below.

Sr. No.	Item	Unit	Quantity	Source	Process
1.	Sand	CUM	2268	River bed	Nil
2.	Aggregate	CUM	5045	Quarry	Crushing
3.	Standard Bricks	-	1826	Red Soil	Heating, Moulding
4.	Timber	M.T	50	Forest	Cutting & Trimming
5.	Construction Waste	Kg/ Day	156	-	-

- The basic engineering materials like aggregate, cement, sand and bricks/blocks will be purchased locally. However, finishing materials will be purchased keeping in mind the energy conservation aspect.
- Fly ash generated from Thermal Power Plants will be used in concrete to the extent of about 20 to 30 %. Depending up on the grade of concrete specified.

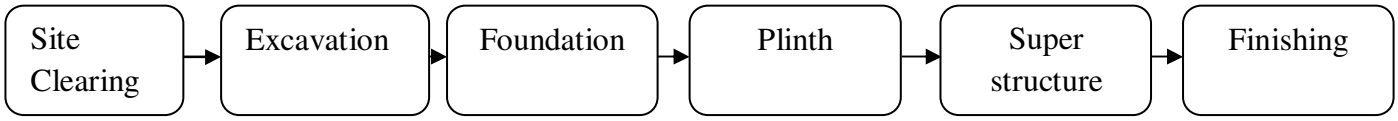
4.2 LIST OF EQUIPMENTS

The construction equipments required for the residential building is given below.

Sr. No.	Equipments	Numbers	Operation	Duration
1.	JSB, Poclain	1	Diesel	Short
2.	Dumpers	2	Diesel	Short
3.	Goods lifts / Personal lifts	1	Electric	Total
4.	Vibrators	4	Electric	Total
5.	Dewatering Pumps	1	Electric	Total
6.	Concrete Mixers	1	Electric	Total
7.	Wood Cutting Machine	1	Electric	Total
8.	Drill Machine	1	Electric	Total

4.3 CONSTRUCTION PROCEDURES

The outline of the construction procedure is described below schematically.



Note:

1] The project is expected to be completed within three years (Maximum) period Construction Parameters and Quality will be strictly adhered to as per the approved architectural design data/map. All the regulations of government authorities will be followed.

2] All the safely precaution will be observed as per the guidelines during the construction phase. Personal Protective Equipments (PPE) will be provided to all the personnel involved in the construction activities.

3] Site barricading by corrugated tin sheets up to height of 5.0 mtr will be done to protect the surrounding area of the project site from nuisance /dusting.

4] All electrical connections & cables will be checked by authorized persons to ensure the safety of workers on field.

5] Water sprinkling will be done, wherever required to reduce the dusting in atmosphere. Jute barricading along building / plot boundary shall be provided to minimize noise level from construction activities.

6] The safety and security officers shall supervise the site.

7] Safety helmets will be mandatory to all the persons present on the site during the construction activities.

8] Hand gloves and dust masks will be provided to persons handing construction materials during the operation.

9] Safety belts will be provided to the persons working at height during the operation.

10] Safety nets will be arranged at a height at about 5.0mtr.when the structures get raised above the required height from the ground.

5. ENVIRONMENTAL CONCERNS

5.1 AIR POLLUTION

1] Source: - The source of Air Emissions is from the use of some equipment like concrete pumps, mixers, etc. These equipments consume Diesel as fuel during their operation. Carbon Monoxide, Hydrocarbons, Oxides of Nitrogen and Particulate Matter etc. will be the major pollutants.

Fugitive Emissions i.e. Emissions from construction activities will mainly consist of dust. Movement of Heavy & light vehicles, for loading and unloading of Construction Materials, transporting people, will also add on to source of emissions.

Parameter	Permissible Range	CPCB Limits	AVG Range Before Activity	During Activity
SPM ($\mu g/m^3$)	100 ~ 200	200	80-100	150-200
RSPM ($\mu g/m^3$)	50 ~ 100	100	20-30	50-100
SO2 ($\mu g/m^3$)	50 ~ 80	80	10-15	10-15
NOx ($\mu g/m^3$)	40 ~ 80	80	5-10	5-10

Ref : 24 Hourly values as per Central Pollution Control Board, National Ambient Air Quality Monitoring, Notification 11th April, 1994, Schedule 1.

5.2 AIR POLLUTION MITIGATION

Sr. No.	Source	Mitigation	
1.	Vehicle	i]	All the vehicles coming to the site will be ensured to be in good condition having PUC.
		ii]	Public awareness to use Green Fuel will be done.
2.	Solid Waste	i]	Proper segregation and collection of waste will be ensured.
		ii]	Location of loading and unloading will be fixed.

		Iii]	Good Housekeeping practices will be ensured at the premises.
3.	Construction Activities	i]	Noise / Dust nuisance preventions by barricading site up to 5.0 meter height by GI Sheets
		ii]	Water sprinkling on dry site, sand.
		Iii]	Maximum use of electrical driven construction equipments with regular maintenance.

5.3 WATER POLLUTION

1] **Use** : - The MCGM water will be used for domestic purpose i.e. drinking water for staff and laborers working on the field whereas bore well water/Tanker water will be used for various constructions activities like, Concreting, Plastering , Flooring & Finishing etc.

2] **Effluent** : - There will be no generation of effluent from construction activities as the water used for concreting; Plastering, Flooring and Finishing etc. will get evaporated during drying or curing time. All the construction activities are physical in nature. The Domestic Effluent will be generated due to the persons working on the site who will require water for drinking, cleaning, bathing etc.

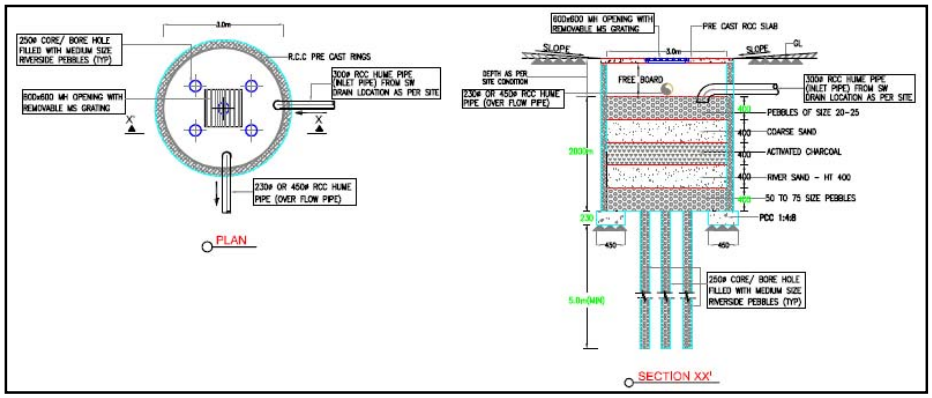
Waste Water generated during operation phase will amount to 32.11 CMD of which 31.62 CMD will be treated in the Sewage Treatment Plant. The treated water will be used for non domestic purposes such as gardening, flushing etc.

3] **Treatment & Disposal** :-The Domestic Effluent generated in construction phase will be disposed off in existing MCGM Sewer.

4] **Rain Water Harvesting** : The plot is already covered with CESSED A category structure of G + 4 upper floors and NON CESSED vacant ground storey structure and same will be developed in 2 Basements + ground + 20 Upper Floor building. The plot area is 928.93 sq mtrs, which is very small. Hence roof rain water harvesting is proposed in the project. The permeable paver blocks are proposed along with 1 Recharge pits to increase the percolation of rain water into the soil rather than flowing to the drain.

*** (AS PER MOEF GUIDELINES)**

- **Percolation Pits: 1 nos. (0.5 * 0.5 * 2m)**



5] **Storm Water Discharge**:

Storm water drains will be constructed for proposed facility as per the norms. The recharge pits and Rain water recharge pits will help to reduce the run off and reduce the load on external storm water drain.

5.4 NOISE POLLUTION

Location	Range dB (A)
	Day Time
National Ambient Air Quality Standards (For Residential Zone)	55

5.5 NOISE LEVEL MITIGATION

Sr. No.	Source	Mitigation
1.	Near Residential Areas	i] Site Barricading by corrugated tin sheets will be done to protect the surrounding area. ii) Construction Activity will be carried out during daytime only.
2.	Nearby Traffic	i] All the vehicles coming to the site will be ensured in good condition, having Pollution Under Check (PUC). ii] Smooth Roads will be maintained in a project site.
3.	Construction Equipments	i] All the equipments will be run during daytime only. ii] Lubricants will be applied to all the equipments at proper interval. Iii] Acoustic Enclosure will be provided for all the Equipments

2] It is evident from the nature of operation (i.e. Construction) that the Concentration of suspended particulate matter would be higher than the other two parameters.

3] Control of Emission: - Proper precaution will be taken to reduce the particulate matter by water sprinkling on the dry site area, barricading the periphery by corrugated tin Sheets of 5.0 mtrs height to protect the surrounding area from dusting. The pollution generated will be controlled by, allowing vehicles that will comply to mass Emission Standard (Bharat Stage –II) stipulated by Central Pollution Control Board (CPCB)–Ministry of Environment & forest (MoEF), New Delhi. Also it will be ensured that the vehicles will carry PUC certificate. To minimize air pollution efforts shall be made by use of equipments, which area electric power driven.

5.6 SOLID WASTE

1] Normal debris, waste concrete, soil, broken bricks, waste plasters etc. will be collected properly and will be reused for land filling in the premises.

2] Total solid waste (Quantity about 259 kg per day) and organic waste (79.77 Kg/ day) will be segregated properly and stored in a separate bins and will be disposed off as per MCGM rules.

3] Metallic Waste and paper waste will be collected separately and will be salvaged or recycled or sold to authorized recyclers.

6. PROJECT SCHEDULE AND COST ESTIMATES

The Proposed Project is Redevelopment project and will be started as soon as all government NOC's and CRZ Clearance is received to start the work. The projected Date of Start is January 2013 while the Date of completion will be Jan 2016 if everything went as per planning.

7. TRAFFIC MANAGEMENT

7.1 CONSTRUCTION PHASE

- Storage and Godown area will be properly identified.
- There will be about adequate wider space for movements of vehicles and parking.
- The area for loading and unloading will be located at proper demarcated location in the premises.
- Thus the traffic management on the project site will be easily and smoothly monitored without any hindrance to the regular flow of traffic on the main road.

7.2 OPERATIONAL PHASE

- About 60 cars per day are expected to be accommodated in the premises. The parking space will be provided in basement and parking floors. There is ample car parking space in the building on all sides; there will be smooth movements of cars.
- There will be 6.0 mtrs wide approach road to the building from municipal road for movements of vehicles and parking.
- Traffic Management Plan system will be approved from concern MCGM Authority.
- Thus the traffic management will be easily and smoothly monitored without any hindrance to the regular flow of traffic on the main road.

8. ENVIRONMENTAL, HEALTH AND SAFETY

All the safety and security measures shall be observed at constructions site. Safety precautions will be observed as per the guidelines during the construction phase. Personal Protective Equipments (PPE)

will be provided to all the personnel involved in the construction activities. The project authorities will ensure use of safety equipments for workers during execution process. The safety and security officers shall supervise the site. Proper training will be given to workers and authorities to handle the hazard situation.

8.1 SAFETY MEASURES ON SITE

1] Parameters and Quality will be strictly adhered to as per the approved architectural design data/map. All the regulations of government authorities will be followed.

2] All the safely precaution will be observed as per the guidelines during the construction phase. Personal Protective Equipments (PPE) will be provided to all the personnel involved in the construction activities.

3] Site barricading by corrugated tin sheets up to height of 5.0 mtr will be done to protect the surrounding area of the project site from nuisance /dusting.

4] All electrical connections & cables will be checked by authorized persons to ensure the safety of workers on field.

5] Water sprinkling will be done, wherever required to reduce the dusting in atmosphere. Jute barricading along building / plot boundary shall be provided to minimize noise level from construction activities.

6] The safety and security officers shall supervise the site.

7] Safety helmets will be mandatory to all the persons present on the site during the construction activities

8] Hand gloves and dust masks will be provided to persons handling construction materials during the operation.

9] Safety belts will be provided to the persons working at height during the operation.

10] Safety nets will be arranged at a height at about 5.0 mtrs when the structures get raised above the required height from the ground.

9. BENEFITS OF THE PROJECT

- The proposed redevelopment will initiate redevelopment of surrounding old buildings.
- The surrounding area will also be developed from residential point of view.
- It will provide employment opportunities to the local people in terms of labour during construction and services personnel during operational phase.
- Modern sanitation and infrastructure facilities will have minimal impact on living condition of local people.
- The project will improve living standard and welfare of the area and local people.

SEISMIC ZONE MAP OF INDIA